

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	WC Docket No. 05-196
E911 Requirements for IP-Enabled)	
Service Providers)	

COMMENTS OF VONAGE AMERICA INC.

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SUMMARY

Vonage America Inc. (“Vonage”) submits these comments in response to the Further Notice of Proposed Rulemaking (“FNPRM”) released by the Commission on June 3, 2005 in connection with its *VoIP E911 Order*. Vonage stands with the Commission in its efforts to extend E911 services to VoIP.

Vonage believes that nationwide efforts to roll-out E911 service for VoIP (and other technologies as well) can be significantly enhanced by the development of a framework for the administration of new E911 gateways that can form the basis for a new a dynamic E911 system which operates based on open infrastructure principles. Over time and once constructed, such a network, along with greater consolidation of access points, would make the E911 system considerably more robust and accessible to VoIP providers, while ensuring non-discriminatory access for all providers and yielding significant national security and the public interest benefits.

There is no viable automatic location identification solution available today for VoIP consumers that meet basic standards of reliability and usefulness. Accordingly, instead of mandating a required timeframe for automatic location identification deployment, the Commission should focus its efforts towards setting the parameters and criteria, and creating the necessary environment, for the expeditious development and implementation of effective E911 automatic location identification solutions. As set forth below, such performance criteria should include considerations of address verification, accuracy, functionality, robustness and cost. At the same time, the Commission should adopt rules to encourage the development of automatic location identification technologies without favoring or stunting the growth of any particular technology.

With respect to changes in customer registered locations, the Commission should consider two distinct scenarios: first, where the VoIP provider already provides E911 service at the new location and, second, where it does not currently provide E911 service at the new location and therefore cannot immediately provision such service. For the former scenario, the Commission should realize that processing a new address can require a dialogue with the customer, and therefore should not impose inflexible time constraints on interconnected VoIP providers. Factors beyond Vonage's reasonable control may prevent Vonage from immediately processing the change request. As a result, the Commission's rules should focus on ensuring that VoIP customers remain up to date with respect to the status of their location change requests.

In the case of a customer moving to a currently unserved location, the Commission should not require VoIP providers to establish connections to E911 selective routers instantly for the first customer to move into a given area. Instead, it should permit VoIP providers to deliver 911 service through alternate means until they have a reasonable number of customers to make direct connection to the selective router cost-effective. The Commission should consider evidence on the cost and technical considerations involved in such connection to determine a reasonable number of customers as a threshold, at which point the VoIP provider should be required to connect directly to a new selective router. VoIP providers should have 180 days to provision E911 service over the Wireline E911 Network once the threshold is met.

Finally, although additional mandatory reporting obligations may not be necessary, VoIP providers are well positioned to assist the Commission in tracking the status of automatic location identification technologies and the deployment of VoIP E911 service.

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I. INTRODUCTION

Vonage America Inc. (“Vonage”) submits these comments in response to the Further Notice of Proposed Rulemaking (“FNPRM”) released by the Commission on June 3, 2005 in connection with its *VoIP E911 Order*.¹ Through its *VoIP E911 Order*, the Commission sought to enhance public safety by ensuring that E911 services are available to users of VoIP services throughout the country. In response, Vonage is working closely with competitive carriers, incumbent local exchange carriers, database operators and members of the public safety community to implement an E911 solution as rapidly as possible.

As part of those efforts, Vonage—the Nation’s leading independent provider of interconnected VoIP services—has analyzed its customer database and has met with officials from the Public Safety Answering Points (“PSAPs”) which will handle the calls for its fifteen largest service areas. Vonage is working collaboratively with those PSAPs to implement the required technical systems needed to terminate VoIP E911 calls. Through those meetings, its extensive dealings with its customers and the E911 community, and Vonage’s work to implement its own

¹ *IP-Enabled Services, E911 Requirements for IP-Enabled Service Providers*, First Report and Order and Notice of Proposed Rulemaking, FCC 05-116 (released June 3, 2005) (the “Order”).

E911 solution, Vonage has collected a substantial volume of information that should be useful to the Commission as it considers the issues posed in the FNPRM.

II. DEVELOPMENT OF AN OPEN ARCHITECTURE E911 SYSTEM

The Commission has asked what steps it can take to foster the development of a “ubiquitous and reliable E-911 system.” Vonage respectfully submits that the shortest and easiest path to reaching that goal is for the Commission to encourage development of a framework for the administration of new E911 gateways that can form the basis for a new a dynamic E911 system which operates based on open infrastructure principles. This new system would allow all voice providers, PSAPs and other approved emergency responders complete and open access to the E911 network by establishing an interface at a limited number of discrete locations where they can access the existing legacy circuit-switched E911 network and exchange a new generation of E911 calls accompanied by greater information.

Over a reasonable time, this new system should replace the existing legacy circuit-switched E911 network, which is duplicative, expensive, and rapidly becoming obsolete. The new system would provide VoIP providers and other 911 entrants the ability to exchange E911 calls with PSAPs as well as to provide PSAPs the ability to exchange calls among each other. Although the existing circuit switched technology has worked well in the past, traditional E911 network architecture is limited in terms of its ability to handle the mobility and advanced features that VoIP calling makes possible. For example, the ability of a PSAP to redirect a call to another jurisdiction is limited at best, and in some cases non-existent. In the future, an IP based network will be able to deliver a myriad of benefits, potentially including providing video or photographic information, more detailed mapping functionality for emergency response teams, and access to more complete information such as medical records, and other technologies as well as facilitating bi-directional real time communication which could support any number of 911

operational protocols and procedures. In this model, all parties benefit: PSAPs have more dynamic capabilities in call receipt, processing and routing; voice providers have more flexibility in 911 connectivity, call delivery and support of real time data elements; and callers benefit by receiving superior emergency response. In order to achieve these benefits for all parties, an IP-based emergency network will need to be implemented.

Connecting to the current E911 system is difficult, expensive and time-consuming. To enable E911 service, VoIP providers must obtain access to ILEC systems, interconnection facilities, numbering resources, PSAPs and other critical elements that traditional telephone companies employ to provide E911 service. Most of these elements are required to interface with the ILECs' circuit-switching equipment, rather than to deliver information between the circuit switch and the PSAP.

Moreover, deployment of E911 service for VoIP services presents challenges not faced by either wireline or wireless telecommunications carriers, due to the nomadic (and potentially real-time mobile) nature of the service. Although wireless VoIP products are available, the vast majority of Vonage's customers use their VoIP services indoors where Global Positioning System based location identification is often largely ineffective. Vonage provides service to customers who are concentrated in large metropolitan areas in multi-tenant environments, such as New York City, where the high population density makes deployment of wireless E911 solutions more difficult. As a result, wireless carrier solutions are significantly less effective for VoIP providers such as Vonage than they are for CMRS providers. At the same time, VoIP providers must contend with the additional challenges created by the integration of IP technologies with traditional wireline networks. Based on its discussions with PSAPs, Vonage is aware

that a tremendous amount of operational education and planning needs to take place both prior to and following any E911 implementation.

Vonage believes that the solution to these challenges is the creation of a new, open platform, IP-based E911 architecture. Vonage recommends that the Commission work to encourage the development of a limited number of Network Access Points (“NAPs”) – points of interconnection at discrete locations which are similar to the Metropolitan Area Exchanges (“MAEs”) established for the exchange of Internet traffic. Such E911 NAPs would provide for the centralized collection of E911 calls at a limited number of access points in a manner that is consistent with and analogous to the network architecture currently in place for Internet service providers for the exchange of IP traffic. VoIP providers, and eventually other telecommunications carriers, would deliver calls in IP format directly to these NAPs, without conversion to PSTN transmission formats. Initially the E911 NAP would provide translation and gateway functionality to the legacy TDM based E911 infrastructure. Thus, instead of requiring dedicated trunk groups to an enormous number of selective routers, service providers could use secure dedicated connections to these NAPs or even potentially VPNs over their existing Internet connections to route traffic efficiently and securely to the NAPs. The fault-tolerant design of IP networks would ensure that, even if a link to one NAP went down, traffic could almost always be re-routed to another. Such access points would allow the efficient and secure collection of E911 calls. This solution is entirely consistent with NENA’s I2 solution and is exactly the solution Vonage is working to put in place today.

In the future, the NAPs would route calls directly. Thus, the PSAPs would be able to use a limited number of secure IP connections to obtain inbound calls from citizens via any of the NAPs. These connections initially would supplement existing circuit-switched trunk groups

connecting to ILEC selective routers, but eventually could be used to replace those connections which currently operate at great cost to the PSAPs themselves. PSAPs would not be required to replace their existing trunk groups with connections to the NAPs, but Vonage believes that the benefits of this system would lead most of them to do so voluntarily.

Furthermore, Vonage believes that creation of universal access points would substantially simplify the termination of E911 calls. In its discussions with PSAPs, Vonage shares a significant concern with the PSAP community concerning misdirected and lost calls. This type of infrastructure could provide a mechanism for calls and information to be redirected from one PSAP to another in the same manner that the VoIP provider delivers the call in the first place. Vonage believes that greater use of IP networking, along with greater consolidation of access points, would make the E911 system considerably more robust and accessible to VoIP providers and PSAPs. For example, Vonage believes that an optimal construction of such E911 NAPs could be achieved with as few as one to three universal access points per RBOC territory. The creation of a new universal E911 open architecture system would yield a number of other important benefits. First, all providers will be able to quickly provision E911 service regardless of the technology used. Even traditional telecommunications carriers who use IP technology within their networks could choose to deliver E911 traffic in IP format to the NAPs. Such universal access will enable the rapid deployment of new technologies and products and ensure ubiquitous coverage to rural areas. Just as VoIP products are a relatively new development, continued technological advancement and innovation are likely to bring additional new technologies, products and services to market. The E911 NAP approach will ensure that providers of those new technologies and existing technologies can quickly and easily deploy E911 service, thereby ensuring that the Commission's public safety goals can be met without retarding the

implementation of new technologies.² Existing interconnections will most likely prove to be too costly to maintain except for ILECs. Most CLECs and wireless providers would switch over to this type of solution if it was made available. This would reduce the cost of providing 911 access for competitive entrants, thereby lowering a potential economic barrier to competition.

Second, the E911 NAP system would allow non-discriminatory access for all VoIP providers and other voice providers. By standardizing the required interface and reducing the number of access points, the Commission can provide greater certainty and transparency to providers of VoIP services thereby allowing service providers to structure their VoIP services with E911 service provision in mind and encourage the development of E911 solutions. It would almost permit a simple and seamless transition for existing carriers to the new system, as they become ready to use it.

Third, given the substantial benefits that a new open architecture system would yield, national security and the public interest support the creation of a new robust system. As noted above, the current system is outdated. A new system built upon open architecture principles using IP infrastructure would be far more dependable. Use of native IP interconnection would leverage IP technology allowing for built-in redundancy and the transmission of richer data sets, vastly improving the delivery of emergency services to U.S. consumers and promoting the ability of emergency personnel to obtain access to the information necessary to respond to emergency situations. An IP-based system would minimize call failure and make the E911 system more

² In order to allow the deployment of a new E911 system, the Commission should consider the creation of a new E911 administrator, possibly using the existing National Program Office. Among other things, the administrator could oversee cost recovery functions and pass through fees to state and local governments as appropriate – thereby ensuring that PSAPs receive access to the funds they need while ensuring that fee recovery is non-discriminatory with respect to different technologies. The administrator could either operate the universal interconnection points itself, or contract with third parties to do so.

reliable. Also, many smaller PSAPs currently have limited or no ability to re-route misdirected calls. An IP-based network would allow PSAPs to more easily re-direct calls back through the NAP, thereby ensuring that any misrouted E911 calls can be re-routed to the geographically relevant PSAP as rapidly as possible.

In light of the foregoing factors, Vonage believes that FCC efforts to support the development a new open architecture E911 system would significantly enhance and simplify the ability of VoIP providers to provide E911 services as well as allow all VoIP providers to ensure that their subscribers have broad access to E911 services.

III. DEVELOPMENT AND IMPLEMENTATION OF AUTOMATIC LOCATION IDENTIFICATION TECHNOLOGY

As a threshold matter, the Commission must recognize that there is no viable automatic location identification solution available today for VoIP consumers that meets basic standards of reliability and usefulness. Therefore, the Commission should focus its efforts and regulation towards setting the parameters and criteria, and creating the environment necessary for, the expeditious development and implementation of effective E911 automatic location identification solutions. With respect to parameters, Vonage urges the Commission to identify performance and tracking criteria through which potential solutions can be evaluated. Vonage's current practice of instructing users to register their E911 address information is an adequate solution at this time for those customers that use their service indoors at a fixed location. On the other hand, today's automatic location technologies may be much more appropriate for outdoor nomadic VoIP devices, like WiFi-enabled phones. Thus, there may not be a "one-size-fits-all" solution.

To date, the Commission has not defined precise operating parameters under which a VoIP automatic location identification solution must operate. While Vonage is aware that some manufacturers and service providers are working to create solutions, the Commission has yet to

specify what specific capabilities and attributes an acceptable E911 automatic location identification system must have. The industry will be able to deploy its resources more efficiently and effectively if it has a specific set of criteria to work towards. Vonage submits that at a minimum, an effective automatic location identification solution should meet at least the following criteria:

- 1) Address Verification: Recognizing that the automatic location identification is inherently most efficiently solved at the local level, the location provided by any potential solution should provide a Master Street Address Guide (“MSAG”) validated street address by incorporating an X, Y coordinates-to-MSAG conversion feature.
- 2) Accuracy: The solution should be highly accurate and should be effective in providing an accurate location even in a high-density/multi-tenant environment.
- 3) Functionality: VoIP services are most frequently used indoors. Therefore, the automatic location solution must be designed to work effectively indoors.
- 4) Robustness: The solution should be highly dependable and handle significant variations in volume.
- 5) Cost: Any solution should not require equipment, particularly subscriber equipment, that unreasonably increases the cost or limits the mobility of the VoIP service, posing a hardship to the user.

In addition to these performance criteria, the Commission should also develop appropriate tracking criteria that will ensure that potential solutions can be evaluated on an on-going basis for technical feasibility, accuracy, and cost. Tracking criteria are necessary for the Commission to obtain complete information about what products are available and how effective those products are in terms of meeting the performance criteria developed by the Commission.

Vonage believes that the development of automatic location identification systems should be monitored from three perspectives.

- 1) Systems Perspective: The Commission should consider the effectiveness of available product offerings on the basis of the technical attributes of the proposed solution they offer and how effectively the solution can meet the performance characteristics identified above.
- 2) E911 Network Perspective: The Commission should consider whether and how the proposed solution will work in conjunction with the current wireline E911 network, considering its adaptability to new network constructions and technologies through the open architecture system described above.
- 3) Market Perspective: The Commission should consider the availability of any potential solution with the goal of promoting a fully competitive industry.

VoIP providers can provide valuable insight into each of these perspectives and therefore can provide important information concerning the availability of E911 automatic location identification systems.

In order for an effective solution to be developed, it is essential that the industry and the FCC work jointly towards developing automatic location identification systems. In doing so, the Commission should avoid imposing regulations that would prevent the industry from identifying and producing an effective I3 solution for VoIP so that future technologies can develop such as allowing PSAP access to records, information and capabilities far beyond automatic location information.

Even with respect to automatic location information, however, given the wide variation among VoIP providers and services they offer and the current state of the art of automatic

location identification technology, Vonage submits that it will not be prudent or practical for the Commission to regulate a solution into existence. Instead, the Commission should continue to work closely with all VoIP industry participants, including VoIP providers and equipment manufacturers alike to ensure that solutions, once they become viable, can be quickly identified, evaluated and deployed.

To date, effective E911 automatic location identification solutions have not been developed. Vonage is aware that some equipment and other providers are working towards the creation of possible solutions using Global Positioning Systems (“GPS”), terrestrial wireless solutions, network-based solutions and other approaches. Vonage has closely reviewed and continues to monitor the status of those available technologies. While some of those new technologies hold promise, none of them are yet capable of meeting all (or in some cases any) of the performance criteria outlined above.

Indeed, many of the potential E911 location identification technologies currently are only in their infancy or under development. None has been successfully deployed broadly in the VoIP environment and no commercial services to which VoIP providers can subscribe currently exist. Wireless based solutions had similar limitations. Indeed, the difficulty of implementing a complete automatic location identification system is illustrated by the wireless industry where, although service providers have been working to implement automatic location identification processes for years, complete (Phase II) automatic location information technology is available in less than fifty percent of the PSAPs nationwide.³ Despite those efforts, the wireless experience is of only very limited use in developing VoIP location solutions. Although VoIP products are nomadic in nature they differ significantly from wireless services both in terms of the manner in

³ See http://www.nena.org/911_facts/911fastfacts.htm and <http://nena.ddti.net/Reports/>.

which they are delivered and the ways in which they are used. Given the state of the technology, Vonage believes that it is much too early to conclude that any particular potential solution is superior to others or therefore to set parameters or a timeframe for required implementation.

The Commission should adopt rules to encourage the development of automatic location identification technologies without favoring or stunting the growth of any particular technology. For example, the Commission should take steps to encourage the development of E911 automatic location identification products and services by promoting broad-based liability protections which extend to all providers of E911 service and equipment. Providing VoIP providers and their equipment manufacturers with the same liability protections currently available to traditional wireline and wireless carriers would remove the uncertainty surrounding development and deployment of E911 solutions for VoIP services. In addition, the Commission should avoid regulations that have the potential of stifling a competitive market with numerous competitive sources of E911 automatic location identification technology.

Automatic location identification solutions suitable for VoIP provider use are still under development and have yet to be commercially deployed. As a result, it is much too early to conclude that any particular potential solution is superior to others or therefore to set parameters or a timeframe for required implementation. Instead, the Commission should foster the development of viable solutions by adopting performance criteria and tracking mechanisms such as those proposed above.

IV. SUBSCRIBER LOCATION CHANGE PROCESSING

The Commission has asked what obligations should apply when a VoIP end user customer changes registered locations. Consideration of that issue involves two distinct scenarios: situations in which the VoIP provider already provides E911 service at the new location and situations in which the VoIP provider does not currently provide E911 service at the new loca-

tion and therefore cannot immediately provision such service. All of these obligations should be carefully crafted to ensure that VoIP subscribers have no incentive to provide inaccurate location information to keep their service active.

A. Customers Registering a New Location Where E911 is Already Available.

In the first scenario, the obligations imposed by the Commission should focus on ensuring that the customer is kept informed about the status of their E911 service while the service is being transitioned to the new registered location. The Commission should not impose arbitrary time limits for transitioning service that do not take account of the practical difficulties that can arise in some cases. While Vonage is able to promptly update registered user locations in most cases, delays sometimes can occur. Correcting these delays usually requires more information from the customer as well as the input and assistance of Vonage's database provider and other carriers. As a result, Vonage cannot ensure that 100% of updates to registered location information will occur within any given number of hours or days. Specifically, when a Vonage subscriber updates their registered location, Vonage immediately transmits that change to its database provider. Upon receipt of that new address, the database provider must determine whether the address is valid. If the address is not valid, Vonage must contact and work with the subscriber to identify a valid address. In some instances, the subscriber may not be available and in all instances, Vonage must rely on third parties to complete the change in registered location process. Even after the address is validated, the database provider must change the address within its system. While processing of registered location changes is typically done quickly and Vonage is working closely with the database providers and the other carriers in order to ensure that changes in registered location are completed as rapidly as possible, the update process can take up to several hours – or in limited instances when the subscriber is not responsive, longer –

to complete. Thus, due to factors that are largely outside of Vonage's control, substantial delays can occur.

Vonage therefore submits that in lieu of a required timeframe for processing changes in registered location, to the extent it deems necessary, the Commission should address registered location changes through regulation that controls the frequency with which VoIP Providers provide status updates to their subscribers in order for those subscribers to remain advised regarding the status of their change in location requests. Such notifications ensure that subscribers know not to rely on their VoIP service for E911 while registered location changes are being processed.

To meet this need, Vonage has developed a step-by-step notification process which ensures that subscribers are continually kept up to date regarding changes to their E911 service. Once a subscriber submits a change in registered location, that subscriber receives an initial e-mail confirming receipt of the E911 registered location change request and advising the subscriber that E911 service has been suspended. Customers are also advised that they will have access to the 911 call center during this suspension.⁴ Vonage then immediately transmits the registered location change request to its database provider. The database provider then attempts to validate the subscriber's new registered location. If the subscriber's new location cannot be validated, Vonage sends a second E-Mail to the subscriber advising them that the address cannot be validated and requests further information. Vonage then works with the subscriber to complete the address validation process. Once the location change has been processed and E911

⁴ As an interim measure, Vonage will route E911 calls made after Vonage receives the request for change in registered location but before that change has been processed to a call center which, once fully deployed, will have the capability to route the call to the appropriate PSAP over the Wireline E911 Network. Given that the subscriber has chosen to move the location of his or her VoIP service, that approach is necessary and appropriate to ensure that calls are not misdirected to the incorrect PSAP.

service has been restored, Vonage sends the subscriber a final notice confirming that the update has been processed and indicating that E911 service has become available at the new location.

Vonage believes that its customer notification process enhances its customers' ability to change their registered locations. Since subscribers are advised immediately upon submitting a change in registered location that their E911 service has been interrupted (typically for at most a few hours), the subscriber will be well aware that he or she temporarily cannot rely on the VoIP service for E911. Subscribers are also kept closely advised as to the status of their registered location update and therefore know promptly when their E911 service has been restored. As a result, Vonage submits that VoIP customers who submit registered location requests will be aware of the temporary disruption of E911 service. Therefore, the Commission should not impose any obligations which would require a VoIP provider to disrupt service while the VoIP provider processes the registered location change so long as the VoIP provider continues to keep its customers apprised of the status of their request for change in registered location.

Based on the foregoing, Vonage respectfully submits that to the extent that the Commission finds that regulation of the registered location change process is needed, the Commission should limit its rules which encapsulate the following obligations:

1. When an existing customer of interconnected VoIP services submits a request to change their registered location, the VoIP provider should immediately initiate the processing of that request.
2. VoIP providers should confirm receipt of a request for change of registered location immediately (through the web page or location change interface and subsequently with an email notification), specifically advise the subscriber in clear and conspicuous language of any differences between traditional E911 and the 911 service available while their new location is

being updated, and promptly advise those customers when E911 service has been changed to the new location.

3. VoIP providers should provide regular updates to their customers regarding the status of the requested registered location change.

4. During the period after a change in registered location is received from the customer and before the database update is complete, the service provider should be permitted to transmit 911 calls to a call center or use other reasonable means of identifying the correct PSAP. Currently, Commission Rule 9.5(b)(2) requires that interconnected VoIP providers must “transmit *all* 911 calls ... to the PSAP ... that serves the customer’s Registered Location” (Emphasis added.) The Commission should amend this rule to recognize that, if a customer’s Registered Location is in the process of being updated, it would be incorrect and potentially dangerous to route a 911 call to the PSAP serving the customer’s *former* location.

B. Customers Registering a New Location Where E911 Has Not Yet Been Deployed.

As the Commission is aware, VoIP providers are often new entrants using new and innovative technology for which legacy E911 systems have not been deployed. Such VoIP providers, including Vonage, are currently working to build out E911 services but do not yet have ubiquitous coverage. Where a VoIP provider does not yet have any customers in a particular geographic area, the VoIP provider normally will not have deployed a E911 service in that area. Deployment of an E911 solution to new areas is both costly and time consuming due to the need for the VoIP provider to construct network connections and obtain required inputs from third party providers. As a result, it will be impossible for VoIP carriers to immediately provision E911 service over the Wireline E911 Network for customers who relocate out of the VoIP subscriber’s E911 footprint. The current rules, however, do not make any allowance for this

situation -- they appear to require an interconnected VoIP provider to be able to deliver 911 calls *immediately* once its first customer registers a service address in that selective router's coverage area.

Vonage recognizes that one alternative approach would be to require VoIP providers to suspend or terminate services to subscribers who register addresses in areas in which E911 service is not available. However, Vonage respectfully submits that that approach would cause substantial operational problems. Until a sufficient automatic location identification technology is implemented, Vonage (and other providers) must rely on the self-reported registered location information provided by its subscribers. If Vonage suspends service to those subscribers that report that they are moving out of Vonage's E911 coverage area, Vonage believes that some subscribers will intentionally mis-report their location or fail to report changes in location to ensure that their service remains active. Such activities from even a low number of subscribers would significantly increase the likelihood of mis-directed calls and lead to geographically incorrect routing of calls. Moreover, terminating or suspending service to those who do accurately report will leave those customers without any access to 911 service whatsoever, thereby putting them at even greater risk.⁵

Furthermore, the cost involved in interconnecting to a particular selective router is independent of the number of customers who might potentially place 911 calls through that selective router; that is, it costs just as much (or more, in rural areas) to connect to a router that serves only one customer as it does to connect to, say, a New York City selective router that potentially serves millions. Therefore, the cost to provide 100% coverage of all selective routers that any

⁵ Such considerations further underscore the need for a dynamic E911 network architecture (as described in Section I above) which will allow substantially more flexibility and more capabilities in terms of re-routing misdirected calls and ensuring rapid response to emergency situations.

Vonage customer might potentially access would be many times greater than the cost of connecting to the fraction of selective routers in densely-populated areas that might serve 80 or 90% of all customers.

Vonage therefore submits that the public interest would be best served by the adoption of a “threshold” rule that would trigger the obligation to provide E911 service over the dedicated Wireline E911 Network only when a particular number of customers have registered addresses within the service territory of a selective router. This rule would not eliminate 911 service for customers in more sparsely-populated areas – the VoIP provider would still be required to provide alternative forms of 911 services to these customers, such as 10-Digit Dialing Access, Call Center, or where applicable, default routing to another selective router which would deliver the call to the designated default agency in that State. Only the dedicated connection to the selective router would not be required until the threshold is reached.

Specifically, Vonage proposes that an interconnected VoIP provider should not be required to provision E911 service *over the Wireline E911 Network* until the VoIP provider’s subscriber count for that selective router equals or exceeds a specified level for a specified period of time. The specific values of the threshold should be set by the Commission after considering evidence concerning the costs and technical considerations involved in connecting to selective routers. Once that threshold is met, the VoIP provider should be required to interconnect to the selective router within 180 days. Again, in areas where the threshold is not yet met, the VoIP provider would be responsible for providing an alternative form of 911 service.

The foregoing approach will maximize the availability of 911 service, cause the deployment of E911 VoIP service at a measured and sustainable rate, eliminate incentives for customers to mis-report their location, and minimize the frequency of mis-directed calls which will

expend scarce emergency responder resources. Significantly, the threshold proposal would provide E911 connectivity immediately for the great majority of VoIP subscribers, because the VoIP customer base (like the population as a whole) tends to be clustered in densely-populated metropolitan areas where the threshold would be triggered immediately. Further, as the VoIP provider gains additional customers, the threshold would apply to an increasing number of selective router coverage areas across the country such that over time, VoIP providers will be in a position to provide E911 services even more broadly. At the same time, the proposed threshold will ensure the widest possible VoIP subscriber access to E911 thereby furthering the Commission's goals.

V. REPORTING REQUIREMENTS

Finally, the Commission has asked whether it should impose additional reporting requirements on VoIP providers. Vonage has worked closely with the Commission over the last several months to keep the Commission informed as to its progress in implementing an E911 solution. Vonage welcomes the opportunity to continue to work closely with the Commission to speed the deployment of E911 service. Vonage therefore is not opposed to additional reasonable reporting requirements if the Commission deems them necessary but suggests that those requirements be tailored to reporting information reasonably accessible to the VoIP providers.

With respect to specific reporting obligations, Vonage believe that VoIP providers in general are particularly well situated to provide periodic reports in two key areas. As discussed above, no automatic location identification systems have been commercially deployed to date. As the purchasers and installers of E911 automatic location information solutions, VoIP providers such as Vonage are well situated to provide the Commission informational updates to assist the Commission in evaluating the availability and viability of potential automatic location solutions. Indeed, VoIP provider input on the availability of those solutions is critical given that

VoIP providers are the owners and operators of the VoIP systems into which these new systems will be integrated.

VoIP providers are also well positioned to advise the Commission about the extent to which VoIP providers have been able to deploy E911 in each PSAP serving area. For example, VoIP providers can report to the Commission (1) the dates upon which individual PSAPs have been contacted in order support E911 services; (2) the dates upon which those PSAPs have agreed to provision network equipment necessary to support E911; and (3) the date upon which those PSAPs have deployed E911 capability.

VI. CONCLUSION

Vonage applauds the Commission's efforts towards promoting public safety and remains committed to working closely with the Commission to deploy E911 solutions as expeditiously as possible. In order to achieve that goal, Vonage respectfully submits the following recommendations:

1. The Commission should begin a proceeding to study how a new dynamic E911 system based on open architecture principles can be created and upon what timeframe such a system could reasonably be created.
2. The Commission should publish performance and tracking criteria in order to encourage the development of viable E911 automatic location identification technologies.
3. In light of the nascent state of automatic location identification technology, the Commission should not impose timeframes for the completion of registered location updates but rather should require that VoIP providers keep their subscribers informed as to the status of their location change requests through the rules proposed in Section II.A above.

4. In instances where a VoIP subscriber relocates service to selective router area in which its VoIP provider does not currently offer E911 service, the VoIP provider should not be required to deploy dedicated E911 service until the VoIP serves a specified level of customers in that selective router area for a specified period of time. Once a VoIP provider reaches that threshold number of subscribers, customer threshold, it must deploy E911 service over the Wireline E911 Network within 180 days. For customers in areas where the threshold has not yet been reached, the VoIP provider must provide an alternative form of 911 service such as via 10-Digit Dialing Access, Call Center, or where applicable, default routing to another selective router which would deliver the call to the designated default agency in that State.

5. Although additional mandatory reporting obligations may not be necessary, VoIP providers are well positioned to assist the Commission in tracking the status of automatic location identification technologies and the deployment of VoIP E911 service.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "W.B. Wilhelm, Jr.", with a stylized flourish at the end.

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